

Comparisons of Job Characteristics

Focus Occupation: Industrial Engineers (17-2112)

Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 77

Focus Occupation: Industrial Engineers (17-2112)

Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Engineering and Technology	5.7	18.9	18.0	0	Current knowledge level may be sufficient
Design	5.2	15.9	14.8	0	Current knowledge level may be sufficient
Mathematics	9.2	15.1	15.6	0	Current knowledge level may be sufficient
Physics	4.3	14.1	8.5	<<	Extensive education and/or training may be required
Public Safety and Security	6.9	14.0	6.7	<<	Extensive education and/or training may be required
Chemistry	4.8	13.0	7.6	<<	Extensive education and/or training may be required
Law and Government	5.9	12.4	4.0	<<	Extensive education and/or training may be required
Building and Construction	4.0	10.3	4.6	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 77

Focus Occupation: Industrial Engineers (17-2112)

Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Critical Thinking	10.8	14.4	13.0	<	A higher skill level may be required
Science	4.5	12.4	3.7	<<	Extensive development of skills in this area may be required

Operations Analysis	5.0	11.0	4.7	<<	Extensive development of skills in this area may be required
Systems Analysis	6.5	10.6	9.9	0	Current skill level may be sufficient
Systems Evaluation	6.4	10.5	9.5	<	A higher skill level may be required
Technology Design	2.6	5.8	4.4	<	A higher skill level may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 95

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Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Problem Sensitivity	11.1	15.3	13.6	<	Some improvement in abilities may be required
Inductive Reasoning	10.2	14.3	12.8	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	14.1	12.5	<	Some improvement in abilities may be required
Written Comprehension	11.0	14.1	14.6	0	Current ability level may be sufficient
Written Expression	9.8	13.4	14.1	0	Current ability level may be sufficient
Near Vision	11.1	12.7	12.5	0	Current ability level may be sufficient
Information Ordering	9.9	11.9	11.8	0	Current ability level may be sufficient
Fluency of Ideas	7.6	11.0	9.7	<	Some improvement in abilities may be required
Flexibility of Closure	7.8	10.9	9.3	<	Some improvement in abilities may be required
Far Vision	7.8	10.2	8.6	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.2	5.1	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 86

Focus Occupation: Industrial Engineers (17-2112)

Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Work Activities	Exclusivity of Activity
Advise clients regarding engineering problems	67
Analyze effectiveness of safety systems or procedures	87
Analyze engineering design problems	69
Analyze technical data, designs, or preliminary specifications	47

Communicate technical information	4
Develop safety regulations	74
Evaluate engineering data	60
Evaluate manufacturing or processing systems	68
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Improve test devices or techniques in manufacturing, industrial or engineering setting	75
Inspect facilities or equipment for regulatory compliance	51
Perform safety inspections in industrial, manufacturing or repair setting	32
Plan testing of engineering methods	72
Prepare safety reports	60
Prepare technical reports or related documentation	22
Read blueprints	10
Read technical drawings	7
Record test results, test procedures, or inspection data	48
Resolve engineering or science problems	46
Understand engineering data or reports	48
Use drafting or mechanical drawing techniques	50
Use hazardous materials information	35
Use mathematical or statistical methods to identify or analyze problems	30
Use scientific research methodology	21
Use technical information in manufacturing or industrial activities	67
Use technical regulations for engineering problems	61

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 73

Focus Occupation: Industrial Engineers (17-2112)

Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Tools and Technologies	Exclusivity
Acute care monitoring units and related products	22
Business function specific software	1
Cameras	2
Computers	1
Content authoring and editing software	1
Development software	4
Electrical measuring and testing equipment	7
Indicating and recording instruments	2
Industry specific software	1
Laboratory ovens and accessories	15
Length and thickness and distance measuring instruments	2
Light and wave generating and measuring equipment	4
Metals and metallurgy and structural materials testing instruments	15

Pressure measuring and control instruments	10
Sound generating and measuring equipment	19
Temperature and heat measuring instruments	6
Transducers	23

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.